On the Proper Motions of Groombridge 1172, *W.B.* (2) *XII.* 740–1, W.B. *XII.* 632.   By A. C. D. Crommelin.

These stars have all been used as comet comparison stars at Greenwich in the last twelve months, and on comparing recent Greenwich observations with the older ones they appear to have sensible proper motions.   Struve's precessions have been used throughout in bringing the places up to 1894·0.   Two cases where the exact epoch of the original observation could not be found are indicated with an asterisk.

Groombridge 1772, *mag.* 6·5.

This star was used in a comparison with Comet *b* 1894 (Gale). The places given are reduced to 1894·0 without proper motion.

Catalogue.	R.A. 1894·0.	N.P.D. 1894·0.	Epoch.	No. of Obs.
	h m s	° ′ ″		
Lalande 21652	11 16 56·241	49 14 33·50	1793·3	1
Groombridge 1772	56·049	36·30	1811·3	5
W.B. (2) XI. 264	56·248	(24·20)	1831·24	1
Rumker	55·947	35·35	1840*	1
Radcliffe	55·950	34·98	{ 1845·9 { 1847·1	5 R.A. 5 N.P.D.
Paris III.	55·473	35·44	1881·3	3 R.A., 2 N.P.D.
Greenwich 1887	55·613	36·37	1887·37	1
„ 1888	55·564	37·12	1888·34	1
„ 1890	55·496	37·21	1890·28	1

The N.P.D. of *W.B.* (2) appears to be 10″ too small. A proper motion of $-0^s·0084$, $+0″·025$ represents these as follows :—

Catalogue.	R.A. 1894·0.	N.P.D. 1894·0.
	h m s	° ′ ″
Lalande	11 16 55·395	49 14 36·02
Groombridge	55·355	38·37
W.B. (2)	55·721	(35·77) (corrected by + 10″)
Rumker	55·493	36·70
Radcliffe	55·546	36·15
Paris (III.)	55·367	35·76
Greenwich 1887	55·557	36·54
„ 1888	55·516	37·26
, 1890	55·465	37·30
Weighted Mean	11 16 55·461	49 14 36·87

W.B. (2) XII. 740–1, mag. 8·7.

There is only a presumption of proper motion in this case, since no observations have been found intermediate between the two by Bessel and the recent ones at Greenwich. The star was used for Comet *c* 1893 (Brooks) on 1893 October 25.

Catalogue.	R.A. 1894·0.	N.P.D. 1894·0.	Epoch.	No. of Obs.
	h m s	° ′ ″		
W. B. (2) XII. 740	12 37 3·044	71 8 32·50	1826·35	1
„ „ 741	3·284	29·90	„	1
Greenwich 1894	2·783	23·31	1894·23	3

The indicated proper motion is −0ˢ·0057, −0″·116.

W.B. XII. 632, mag. 8·5.

This star was used for the same comet on 1893 October 18. There seems no doubt of its having a large proper motion in R.A.

Catalogue.	R.A. 1894·0.	N.P.D. 1894·0.	Epoch.	No. of Obs.
	h m s	° ′ ″		
Lalande 23763	12 39 37·107	75 55 (33·40)	1795·2	1
W.B. XII. 632	(27·656)	43·47	1825*	1
Yarnall	36·008	44·43	⎰ 1864·8 ⎱ 1866·3	9 R.A. 2 N.P.D.
Greenwich 1894	35·410	45·07	1894·23	3

The N.P.D. in *Lalande* and the R.A. in *W.B.* seem too small by 10″ and 10ˢ respectively. A proper motion of −0ˢ·0185, +0″·021 represents the above places as follows :—

Catalogue.	R.A. 1894·0.	N.P.D. 1894·0.	
	h m s	° ′ ″	
Lalande	12 39 35·279	75 55 (45·47)	(corrected by + 10″)
W.B.	(36·379)	44·92	(R.A. corrected by + 10ˢ)
Yarnall	35·468	45·01	
Greenwich	35·414	45·07	

Weighted mean (rejecting *W.B.* in R.A.) 12ʰ 39ᵐ 35ˢ·441, 75° 55′ 45″·09.

The two stars *W.B.* (2) X.417–8, *W.B.* (2) X.480, mags. 8·8, 9·0 repectively, whose probable proper motion was alluded to by Sir R. S. Ball (*Monthly Notices*, liv. 8, p. 555), occur in the Leiden zones. The places reduced to 1894·0 are as follows :—

Catalogue.	R.A. 1894·0.	N.P.D. 1894·0.	
	h m s	° ′ ″	
W.B. (2) X. 417	10 23 22·51	57 27 8·6	1830·27
,, ,, 418	22·85	6·3	1831·27
Leiden Z. 287	21·89	5·4	1873·22
,, 288	21·97	4·9	1873·22
W. B. (2) X. 480	10 26 28·53	57 29 53·0	1830·27
Leiden Z. 169	29·22	52·0	1872·19
,, 281	29·31	51·3	1873·19

There seems to be a sensible proper motion in R.A. in each case, the values indicated being $-0^s\cdot0177$, $+0^s\cdot0173$ respectively.

Observations of Comet b 1894 (Gale) made at the Royal Observatory, Greenwich.

(Communicated by the Astronomer Royal.)

The observations were made with the East, or Sheepshanks, equatorial, aperture 6·7 inches, by taking transits over two cross-wires at right angles to each other, and each inclined 45° to the parallel of declination. Magnifying power 55. On July 11 the observations were made with the 28-inch equatorial.

Greenwich Mean Solar Time.	Observer.	☽ − ✶R.A.	Corr. for Refraction.	Log factor of Parallax.	☽ − ✶N.P.D.	Corr. for Refraction.	Log factor of Parallax.	No. of Comps.	Apparent R.A.	Apparent N.P.D.	Comp. Star.
1894. d h m s		m s	s		′ ″	″			h m s	° ′ ″	
June 7 12 13 45	B.	+2 44·14	0·00	9·6867	− 0 40·8	0·0	0·7171	3	11 19 41·43	49 13 50·3	a
21 10 59 4	,,	−0 0·45	0·00	9·6901	−1 8·6	0·0	0·6255	3	...	...	b
22 11 28 6	A.C.	+1 58·48	0·00	9·6999	−5 45·8	−0·1	0·6735	2	...	...	b
22 11 28 6	,,	+1 16·28	0·00	9·6999	+7 20·4	+0·1	0·6735	2	...	...	c
24 11 8 27	H.	+1 24·80	0·00	9·6971	+5 41·7	+0·1	0·6480	4	11 56 24·45	46 54 52·6	d
24 11 33 29	,,	−0 31·94	0·00	9·7021	−10 10·5	−0·2	0·6866	4	...	...	e
28 11 19 3	,,	+2 19·88	0·00	9·6994	−3 31·7	−0·0	0·6521	6	12 4 4·27	46 41 19·9	f
28 11 19 3	,,	+1 25·83	0·00	9·6994	−1 9·5	+0·0	0·6521	6	12 4 4·54	46 41 19·6	g
29 10 44 43	C.D.	−0 38·00	0·00	9·6941	+9 22·9	0·0	0·6233	3	12 5 59·12	46 38 41·7	h
29 10 51 23	H.F.	−0 38·42	0·00	9·6967	+9 36·1	+0·1	0·6344	3	12 5 58·70	46 38 55·0	h
30 11 20 25	A.C.	+1 15·66	0·00	9·7041	+7 6·4	+0·1	0·6831	4	12 7 52·76	46 36 25·3	h